

The Hawaii-based Longline Logbook Summary Report January-March 2013¹

Pacific Islands Fisheries Science Center
Fisheries Monitoring Branch

This report summarizes data on fish catch and fishing effort by Hawaii-based longline vessels during the first quarter of 2013 (Q1-2013). Results are based on the date gear was hauled, as reported by vessel operators to the National Marine Fisheries Service in federal logbooks of daily fishing activity. The report covers longline operations for fishing trips completed in the first quarter of 2013 and most, but not all, Q1-2013 data from trips that began late in the first quarter and continued into the second quarter of 2013. Therefore, the Q1-2013 summary statistics reported here are preliminary.

During Q1-2013, 127 vessels were active in the Hawaii-based fleet, four more vessels compared to Q1-2012 (Table 1, Fig. 1). They made 428 longline trips (2 less than in Q1-2012), including 398 using deep-set gear to target tuna (14 more than in Q1-2012) and 30 using shallow-set gear to target swordfish (16 less than in Q1-2012; Fig. 2). During Q1-2013, the fleet deployed a record 11.6 million hooks, about 1 million more hooks compared to Q1-2012 (Fig. 3). They fished mainly on the high seas outside the U.S. Exclusive Economic Zone (EEZ) (66% of the total hooks set) followed by the main Hawaiian Islands (MHI) EEZ (24%), the EEZ of the U.S. Pacific Remote Island Areas (PRIA, consisting of U.S. possessions Wake Island, Jarvis Island, Howland Island, Baker Island, Kingman Reef, Palmyra Atoll, and Johnston Atoll) (6%), and the EEZ of the Northwestern Hawaiian Islands (NWHI) (5%).

In Q1-2013, the Hawaii longline fleet caught 40,033 bigeye tuna (Fig. 4); 70% were caught on high seas outside the U.S. EEZ and 19% in the MHI EEZ. The bigeye tuna catch-per-unit-of-effort (CPUE) on deep-set trips was 3.6 fish per 1000 hooks, down 0.15 from Q1-2012 (Fig. 5). The albacore catch and CPUE on deep-set trips in Q1-2013 were 8,210 fish and 0.71 fish per 1000 hooks, respectively (Figs. 6-7). The yellowfin tuna catch and CPUE on deep-set trips in Q1-2013 were 8,238 fish and 0.74 fish per 1000 hooks, respectively (Figs. 8-9).

The Q1-2013 swordfish catch was 5,675 fish, 2,718 fewer swordfish than in Q1-2012 (Fig. 10). In Q1-2013, swordfish CPUE on shallow-set trips was 10.5 fish per 1000 hooks, about the same as in Q1-2012 (Fig. 11).

The striped marlin catch in Q1-2013 was 1,843 fish and the CPUE on deep-set trips was 0.16 fish per 1000 hooks (Figs. 12-13). The blue marlin catch in Q1-2013 was 643 fish and the CPUE on deep-set trips was 0.06 fish per 1000 hooks (Figs. 14-15).

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The fleet caught 15,258 sharks in Q1-2013, of which 202 (1%) were kept. Blue shark comprised 70% of the total shark catch (10,616 fish) (Fig. 16). Blue shark CPUE on shallow-set trips in Q1-2013 was 6.1 fish per 1000 hooks, 2.5 fish per 1000 hooks below the CPUE in Q1-2012 (Fig. 17).

In Q1-2013, the Hawaii longline catch of other key pelagic species included 12,520 mahimahi (Fig. 18) with a CPUE of 1.09 fish per 1000 hooks on deep-set trips (Fig. 19); 2,645 moonfish (Fig. 20) with a CPUE of 0.23 fish per 1000 hooks on deep-set trips (Fig. 21); 24,870 pomfret (Fig. 22) with a CPUE of 2.24 fish per 1000 hooks on deep-set trips (Fig. 23); and 3,861 wahoo (Fig. 24) with a CPUE of 0.35 fish per 1000 hooks on deep-set trips (Fig. 25). A high percentage of the catch of these species was kept.

The summary statistics in Table 1 are based on logbook records from all fishing areas combined and all types of longline fishing trips—those on which the gear is set shallow targeting swordfish and those on which the gear is set deep aimed at catching tuna. Hence, the CPUE figures in Table 1 differ from those reported above, which were calculated using data exclusively from deep-set trips or shallow-set, depending on the species of interest.

The longline logbook statistics reported above refer to all fishing areas combined. Q1-2013 summary catch and effort were also compiled by several geographical sub-areas including: the MHI EEZ; the NWHI EEZ; the PRIA EEZ; the combined EEZ of MHI, NWHI and PRIA; and waters outside the U.S. EEZ. These statistics are presented in Tables 2-6. Q1-2013 summary statistics for the entire fishing area are also presented for each distinct trip type: swordfish-targeted trips using shallow-set gear (Table 7) and tuna-targeted trips deploying deep-set gear (Table 8).

This report is available in both PDF and HTML format on the PIFSC website at <http://www.pifsc.noaa.gov/fmb/reports.php>. The website also provides quarterly and yearly charts and an archive of quarterly and annual summary tables of fish catch and fishing effort from 1991 to the present. The statistics in the online graphs and archived tables are updated periodically as new records are added to the database and corrections are made.

Table 1. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage				
Time Period	1st Quarter 2013			
Fishing Area	All Areas			
Trip Types	All Trip Types			
		<div>Number of vessels active127</div> <div>Number of trips428</div> <div>Number of sets4,983</div> <div>Number of hooks set11,555,699</div>		
Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	643	641	2	0.06
Striped marlin	1,843	1,825	18	0.16
Shortbill spearfish	4,440	4,423	17	0.38
Swordfish	5,675	5,329	346	0.49
Other billfishes	123	123	0	0.01
Total	12,724	12,341	383	1.10
Sharks				
Blue shark	10,616	27	10,589	0.92
Mako sharks	1,026	151	875	0.09
Thresher sharks	3,065	22	3,043	0.27
Oceanic whitetip shark	157	1	156	0.01
Silky shark	195	0	195	0.02
Other sharks	199	1	198	0.02
Total	15,258	202	15,056	1.32
Tunas				
Albacore	8,210	8,101	109	0.71
Bigeye tuna	40,033	39,562	471	3.46
Yellowfin tuna	8,238	8,211	27	0.71
Bluefin tuna	2	2	0	0.00
Skipjack tuna	16,865	16,641	224	1.46
Other tunas	3	3	0	0.00
Total	73,351	72,520	831	6.35
Other PMUS				
Mahimahi	12,520	12,356	164	1.08
Moonfish	2,645	2,621	24	0.23
Wahoo	3,861	3,851	10	0.33
Oilfish	9,634	9,447	187	0.83
Pomfret	24,870	24,830	40	2.15
Total	53,530	53,105	425	4.63
Total PMUS	154,863	138,168	16,695	13.40
Total Non-PMUS	985	164	821	0.09
Total All Species				
	155,848	138,332	17,516	13.49

Table 2. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage		Number of vessels active103		
Time Period	1st Quarter 2013	Number of trips208		
Fishing Area	Main Hawaiian Islands EEZ	Number of sets1,146		
Trip Types	All Trip Types	Number of hooks set2,735,949		

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	95	94	1	0.03
Striped marlin	558	554	4	0.20
Shortbill spearfish	1,151	1,147	4	0.42
Swordfish	86	85	1	0.03
Other billfishes	12	12	0	0.00
Total	1,902	1,892	10	0.70
Sharks				
Blue shark	2,138	5	2,133	0.78
Mako sharks	175	47	128	0.06
Thresher sharks	134	7	127	0.05
Oceanic whitetip shark	12	0	12	0.00
Silky shark	0	0	0	0.00
Other sharks	24	0	24	0.01
Total	2,483	59	2,424	0.91
Tunas				
Albacore	901	895	6	0.33
Bigeye tuna	7,605	7,536	69	2.78
Yellowfin tuna	2,014	2,003	11	0.74
Bluefin tuna	0	0	0	0.00
Skipjack tuna	4,061	4,034	27	1.48
Other tunas	3	3	0	0.00
Total	14,584	14,471	113	5.33
Other PMUS				
Mahimahi	3,134	3,111	23	1.15
Moonfish	441	440	1	0.16
Wahoo	359	357	2	0.13
Oilfish	2,388	2,375	13	0.87
Pomfret	2,529	2,516	13	0.92
Total	8,851	8,799	52	3.24
Total PMUS	27,820	25,221	2,599	10.17
Total Non-PMUS	506	50	456	0.18
Total All Species				
	28,326	25,271	3,055	10.35

Table 3. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage					Number of vessels active	38
Time Period	1st Quarter 2013				Number of trips	45
Fishing Area	Northwestern Hawaiian Islands EEZ				Number of sets	209
Trip Types	All Trip Types				Number of hooks set	525,976

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	12	12	0	0.02
Striped marlin	153	145	8	0.29
Shortbill spearfish	296	296	0	0.56
Swordfish	21	19	2	0.04
Other billfishes	8	8	0	0.02
Total	490	480	10	0.93
Sharks				
Blue shark	781	0	781	1.48
Mako sharks	41	15	26	0.08
Thresher sharks	23	1	22	0.04
Oceanic whitetip shark	4	0	4	0.01
Silky shark	0	0	0	0.00
Other sharks	1	0	1	0.00
Total	850	16	834	1.62
Tunas				
Albacore	656	653	3	1.25
Bigeye tuna	1,596	1,538	58	3.03
Yellowfin tuna	412	409	3	0.78
Bluefin tuna	0	0	0	0.00
Skipjack tuna	878	872	6	1.67
Other tunas	0	0	0	0.00
Total	3,542	3,472	70	6.73
Other PMUS				
Mahimahi	359	356	3	0.68
Moonfish	136	136	0	0.26
Wahoo	61	61	0	0.12
Oilfish	502	494	8	0.95
Pomfret	329	326	3	0.63
Total	1,387	1,373	14	2.64
Total PMUS	6,269	5,341	928	11.92
Total Non-PMUS	4	4	0	0.01
Total All Species				
	6,273	5,345	928	11.93

Table 4. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage					Number of vessels active	35
Time Period	1st Quarter 2013				Number of trips	43
Fishing Area	Pacific Remote Island Areas (PRIA) EEZ				Number of sets	270
Trip Types	All Trip Types				Number of hooks set	683,298

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	85	85	0	0.12
Striped marlin	83	83	0	0.12
Shortbill spearfish	260	259	1	0.38
Swordfish	38	38	0	0.06
Other billfishes	15	15	0	0.02
Total	481	480	1	0.70
Sharks				
Blue shark	633	0	633	0.93
Mako sharks	41	7	34	0.06
Thresher sharks	126	1	125	0.18
Oceanic whitetip shark	88	0	88	0.13
Silky shark	187	0	187	0.27
Other sharks	124	0	124	0.18
Total	1,199	8	1,191	1.75
Tunas				
Albacore	748	747	1	1.09
Bigeye tuna	2,950	2,915	35	4.32
Yellowfin tuna	527	521	6	0.77
Bluefin tuna	0	0	0	0.00
Skipjack tuna	344	342	2	0.50
Other tunas	0	0	0	0.00
Total	4,569	4,525	44	6.69
Other PMUS				
Mahimahi	825	823	2	1.21
Moonfish	54	54	0	0.08
Wahoo	384	382	2	0.56
Oilfish	536	529	7	0.78
Pomfret	1,798	1,795	3	2.63
Total	3,597	3,583	14	5.26
Total PMUS	9,846	8,596	1,250	14.41
Total Non-PMUS	72	6	66	0.11
Total All Species	9,918	8,602	1,316	14.51

Table 5. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage		<div>Number of vessels active112 Number of trips262 Number of sets1,625 Number of hooks set3,945,223</div>		
Time Period	1st Quarter 2013			
Fishing Area	Hawaiian Islands EEZ + PRIA EEZ			
Trip Types	All Trip Types			

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	192	191	1	0.05
Striped marlin	794	782	12	0.20
Shortbill spearfish	1,707	1,702	5	0.43
Swordfish	145	142	3	0.04
Other billfishes	35	35	0	0.01
Total	2,873	2,852	21	0.73
Sharks				
Blue shark	3,552	5	3,547	0.90
Mako sharks	257	69	188	0.07
Thresher sharks	283	9	274	0.07
Oceanic whitetip shark	104	0	104	0.03
Silky shark	187	0	187	0.05
Other sharks	149	0	149	0.04
Total	4,532	83	4,449	1.15
Tunas				
Albacore	2,305	2,295	10	0.58
Bigeye tuna	12,151	11,989	162	3.08
Yellowfin tuna	2,953	2,933	20	0.75
Bluefin tuna	0	0	0	0.00
Skipjack tuna	5,283	5,248	35	1.34
Other tunas	3	3	0	0.00
Total	22,695	22,468	227	5.75
Other PMUS				
Mahimahi	4,318	4,290	28	1.09
Moonfish	631	630	1	0.16
Wahoo	804	800	4	0.20
Oilfish	3,426	3,398	28	0.87
Pomfret	4,656	4,637	19	1.18
Total	13,835	13,755	80	3.51
Total PMUS	43,935	39,158	4,777	11.14
Total Non-PMUS	582	60	522	0.15
Total All Species				
	44,517	39,218	5,299	11.28

Table 6. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage			Number of vessels active124	
Time Period	1st Quarter 2013	Number of trips366		
Fishing Area	Outside U.S. EEZ	Number of sets3,358		
Trip Types	All Trip Types	Number of hooks set7,610,476		

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	451	450	1	0.06
Striped marlin	1,049	1,043	6	0.14
Shortbill spearfish	2,733	2,721	12	0.36
Swordfish	5,530	5,187	343	0.73
Other billfishes	88	88	0	0.01
Total	9,851	9,489	362	1.29
Sharks				
Blue shark	7,064	22	7,042	0.93
Mako sharks	769	82	687	0.10
Thresher sharks	2,782	13	2,769	0.37
Oceanic whitetip shark	53	1	52	0.01
Silky shark	8	0	8	0.00
Other sharks	50	1	49	0.01
Total	10,726	119	10,607	1.41
Tunas				
Albacore	5,905	5,806	99	0.78
Bigeye tuna	27,882	27,573	309	3.66
Yellowfin tuna	5,285	5,278	7	0.69
Bluefin tuna	2	2	0	0.00
Skipjack tuna	11,582	11,393	189	1.52
Other tunas	0	0	0	0.00
Total	50,656	50,052	604	6.66
Other PMUS				
Mahimahi	8,202	8,066	136	1.08
Moonfish	2,014	1,991	23	0.26
Wahoo	3,057	3,051	6	0.40
Oilfish	6,208	6,049	159	0.82
Pomfret	20,214	20,193	21	2.66
Total	39,695	39,350	345	5.22
Total PMUS	110,928	99,010	11,918	14.58
Total Non-PMUS	403	104	299	0.05
Total All Species				
	111,331	99,114	12,217	14.63

Table 7. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage					Number of vessels active	12
Time Period	1st Quarter 2013				Number of trips	30
Fishing Area	All Areas				Number of sets	459
Trip Types	Swordfish Targeted Trips				Number of hooks set	490,053

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1	1	0	0.00
Striped marlin	19	14	5	0.04
Shortbill spearfish	27	24	3	0.06
Swordfish	5,158	4,824	334	10.53
Other billfishes	8	8	0	0.02
Total	5,213	4,871	342	10.64
Sharks				
Blue shark	2,982	10	2,972	6.09
Mako sharks	342	21	321	0.70
Thresher sharks	8	0	8	0.02
Oceanic whitetip shark	0	0	0	0.00
Silky shark	0	0	0	0.00
Other sharks	10	0	10	0.02
Total	3,342	31	3,311	6.82
Tunas				
Albacore	303	224	79	0.62
Bigeye tuna	275	253	22	0.56
Yellowfin tuna	101	101	0	0.21
Bluefin tuna	2	2	0	0.00
Skipjack tuna	10	9	1	0.02
Other tunas	0	0	0	0.00
Total	691	589	102	1.41
Other PMUS				
Mahimahi	478	376	102	0.98
Moonfish	49	28	21	0.10
Wahoo	6	4	2	0.01
Oilfish	358	216	142	0.73
Pomfret	43	31	12	0.09
Total	934	655	279	1.91
Total PMUS	10,180	6,146	4,034	20.77
Total Non-PMUS	2	1	1	0.00
Total All Species	10,182	6,147	4,035	20.78

Table 8. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 5/22/2013 1:27:54PM].

Report Coverage			Number of vessels active120	
Time Period	1st Quarter 2013	Number of trips398		
Fishing Area	All Areas	Number of sets4,524		
Trip Types	Tuna Targeted Trips	Number of hooks set11,065,646		

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	642	640	2	0.06
Striped marlin	1,824	1,811	13	0.16
Shortbill spearfish	4,413	4,399	14	0.40
Swordfish	517	505	12	0.05
Other billfishes	115	115	0	0.01
Total	7,511	7,470	41	0.68
Sharks				
Blue shark	7,634	17	7,617	0.69
Mako sharks	684	130	554	0.06
Thresher sharks	3,057	22	3,035	0.28
Oceanic whitetip shark	157	1	156	0.01
Silky shark	195	0	195	0.02
Other sharks	189	1	188	0.02
Total	11,916	171	11,745	1.08
Tunas				
Albacore	7,907	7,877	30	0.71
Bigeye tuna	39,758	39,309	449	3.59
Yellowfin tuna	8,137	8,110	27	0.74
Bluefin tuna	0	0	0	0.00
Skipjack tuna	16,855	16,632	223	1.52
Other tunas	3	3	0	0.00
Total	72,660	71,931	729	6.57
Other PMUS				
Mahimahi	12,042	11,980	62	1.09
Moonfish	2,596	2,593	3	0.23
Wahoo	3,855	3,847	8	0.35
Oilfish	9,276	9,231	45	0.84
Pomfret	24,827	24,799	28	2.24
Total	52,596	52,450	146	4.75
Total PMUS	144,683	132,022	12,661	13.07
Total Non-PMUS	983	163	820	0.09
Total All Species				
	145,666	132,185	13,481	13.16

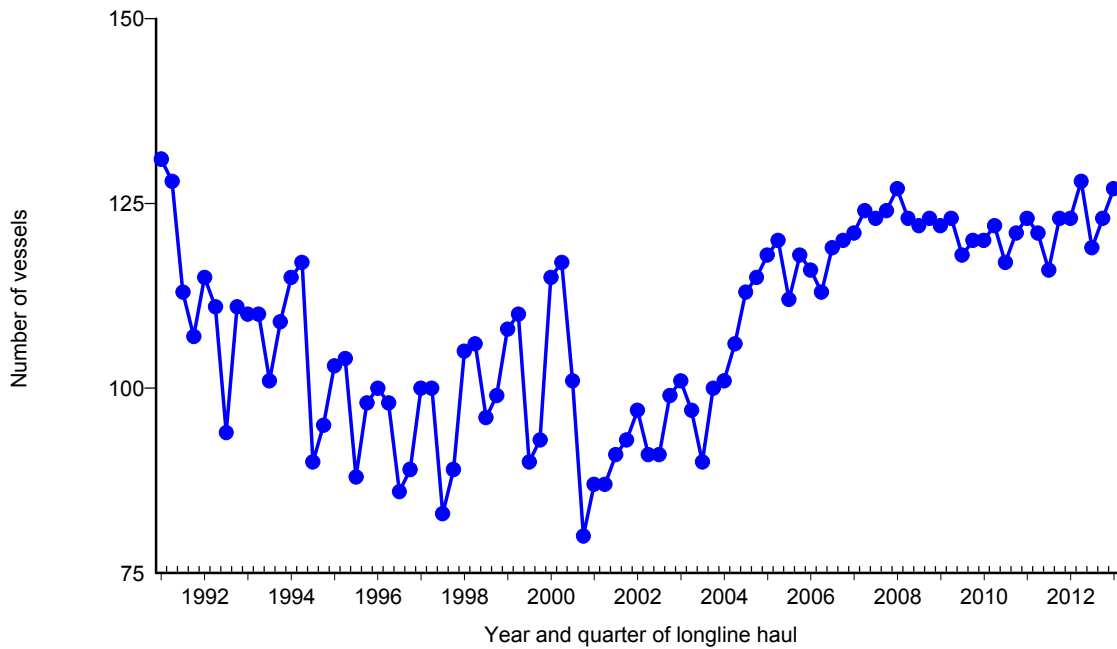


Figure 1. Number of active longline vessels based and landing in Hawaii, by quarter, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:36:48PM]

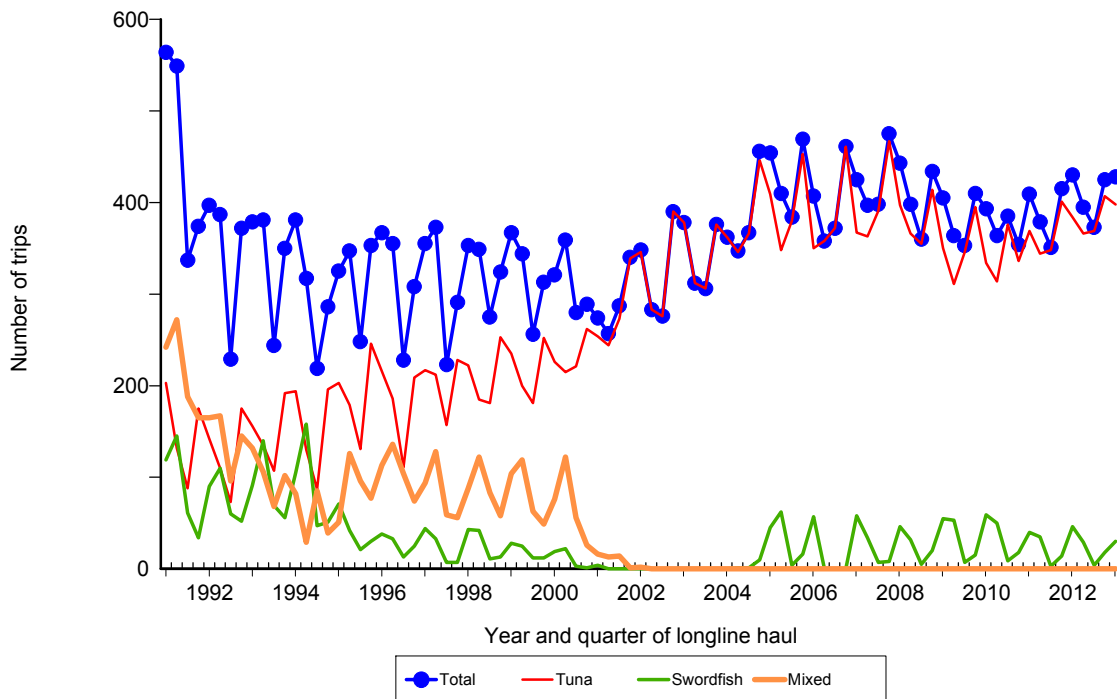


Figure 2. Number of fishing trips by longline vessels based and landing in Hawaii, by quarter and trip type, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:36:48PM]

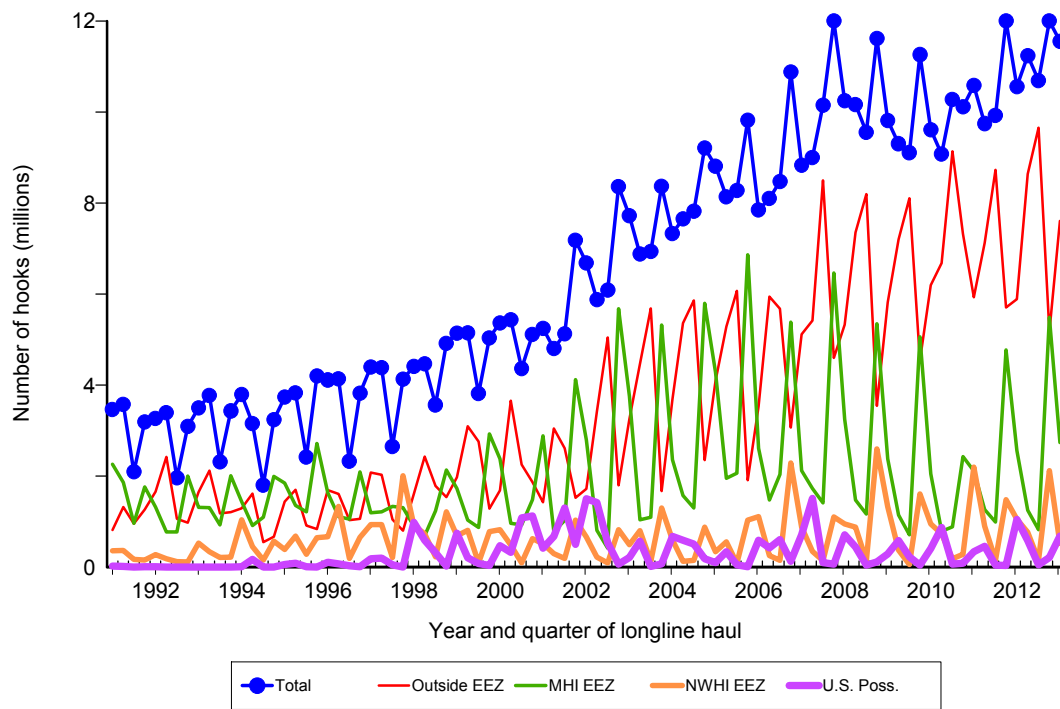


Figure 3. Number of hooks set by longline vessels based and landing in Hawaii, by quarter and fishing area, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:38:19PM]

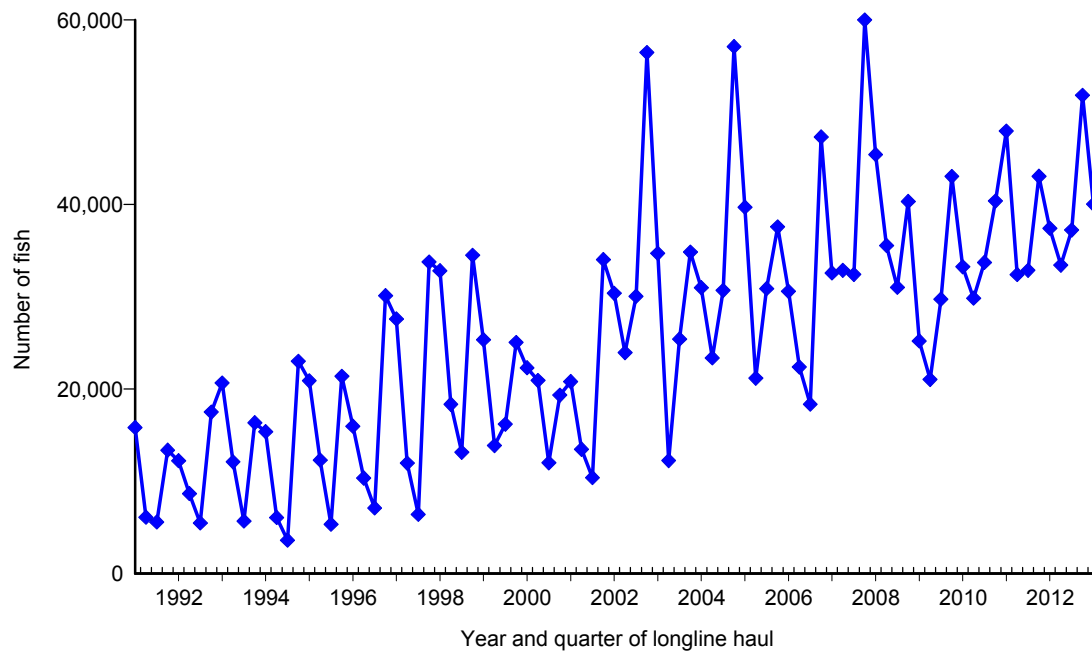


Figure 4. Quarterly catch of bigeye tuna by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:39:10PM]

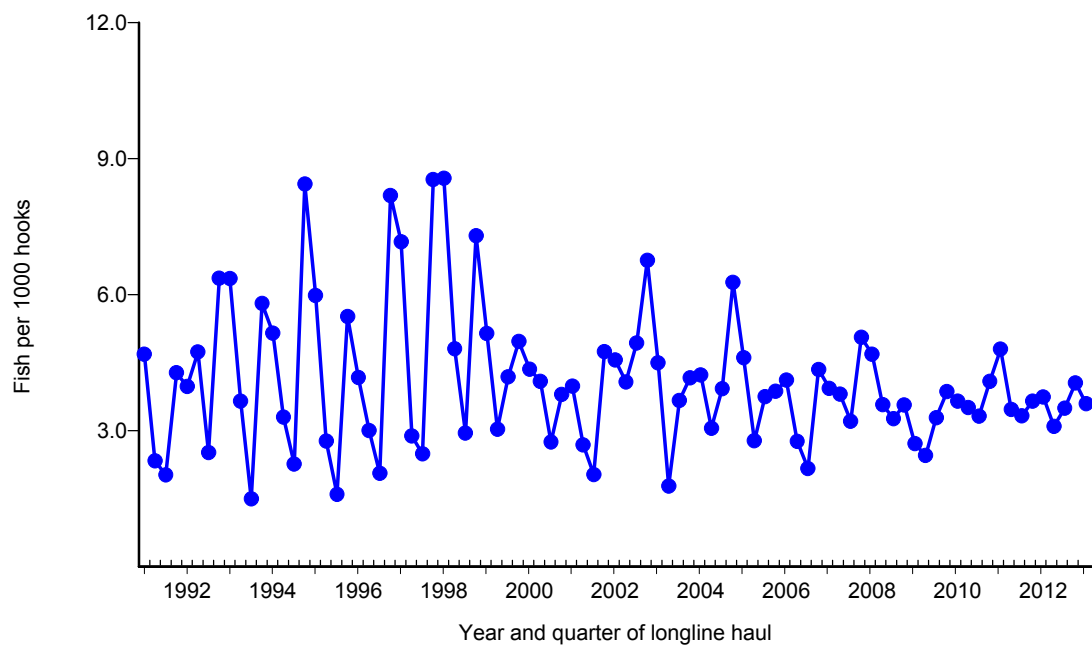


Figure 5. Quarterly CPUE of bigeye tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:39:10PM]

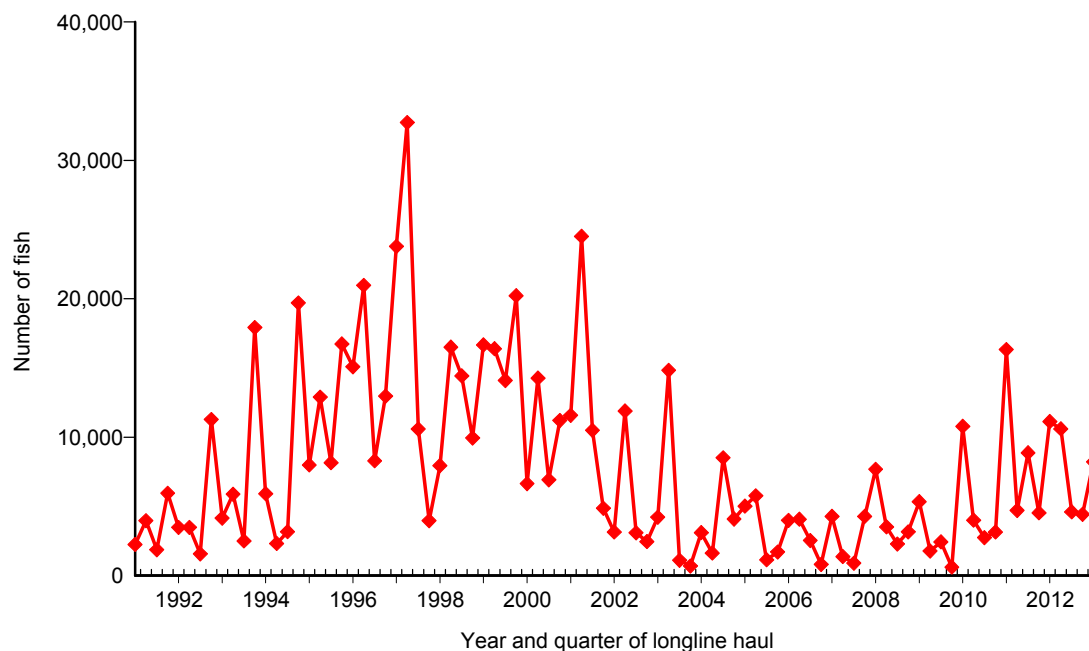


Figure 6. Quarterly catch of albacore by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:39:37PM]

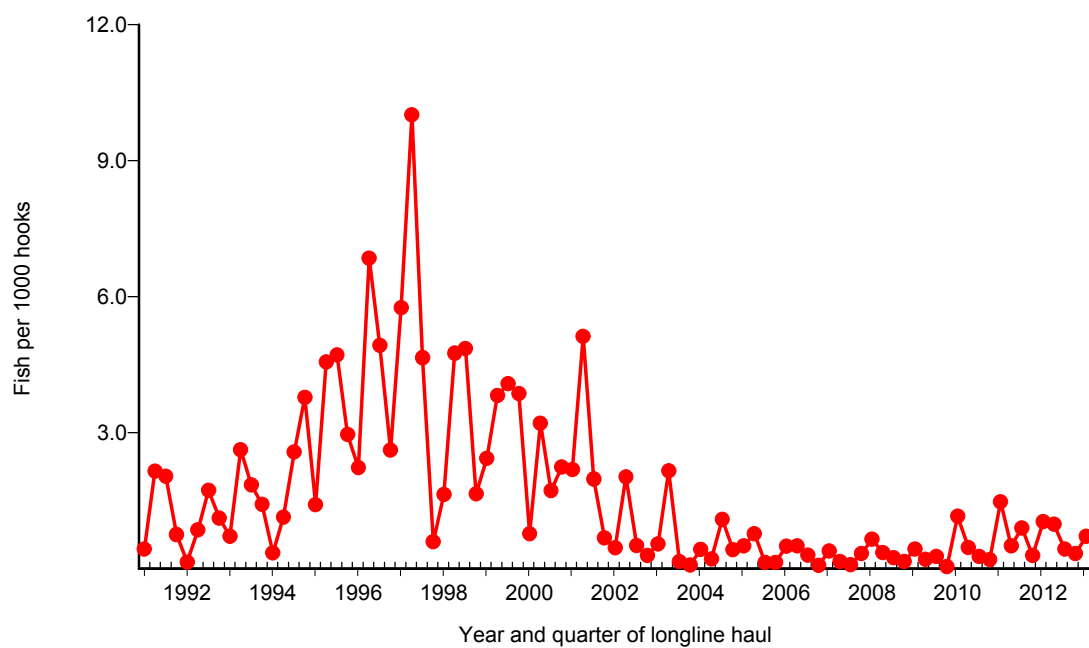


Figure 7. Quarterly CPUE of albacore (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:39:37PM]

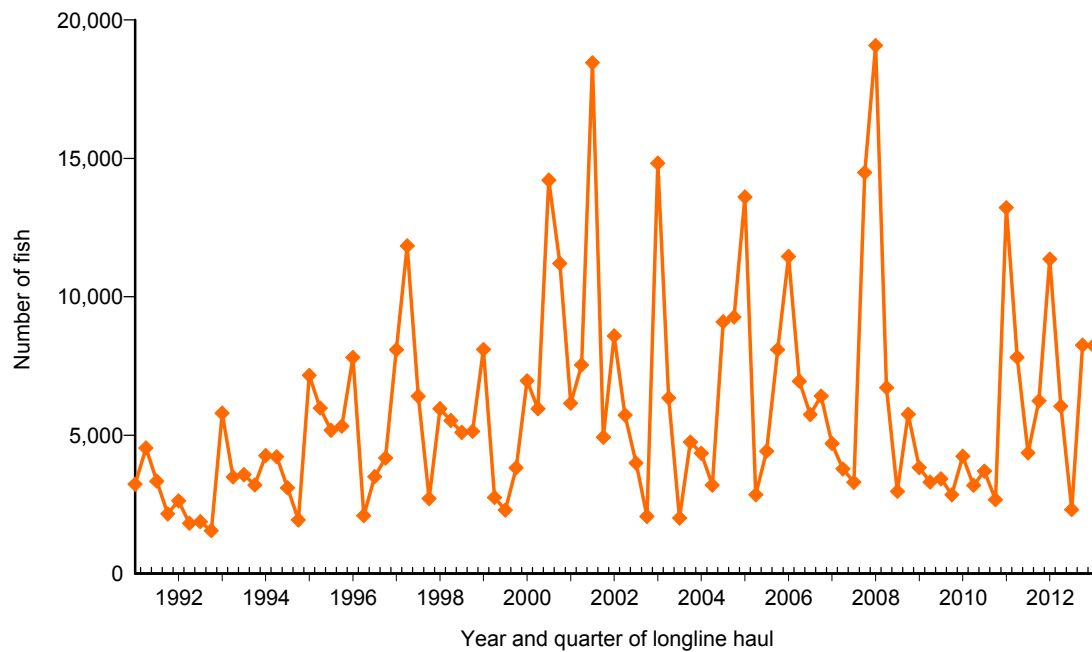


Figure 8. Quarterly catch of yellowfin tuna by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:03PM]

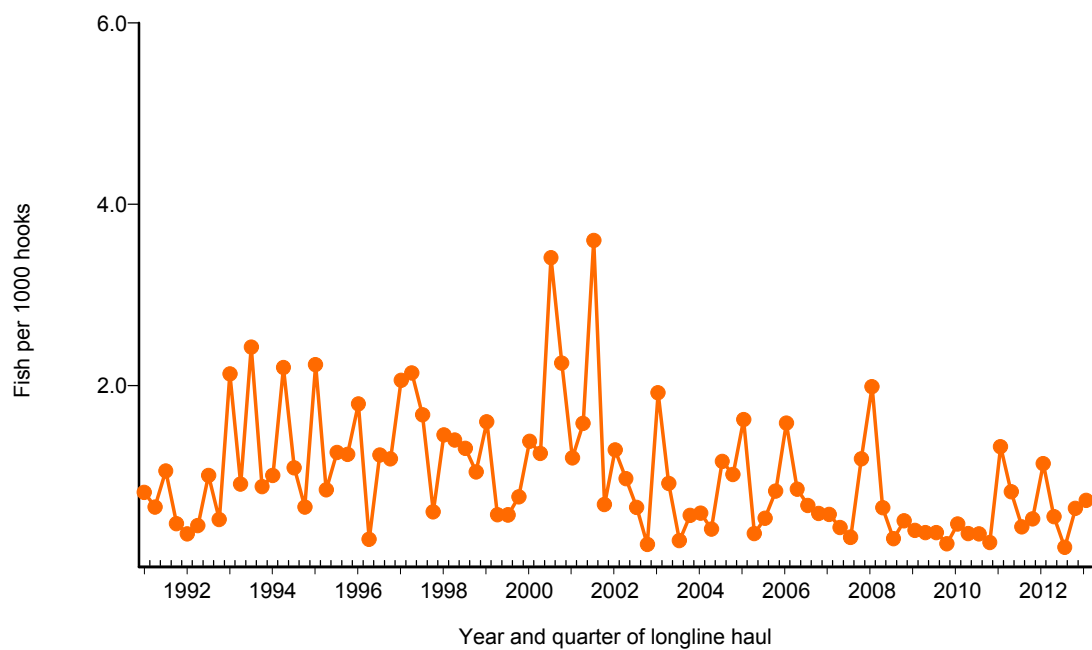


Figure 9. Quarterly CPUE of yellowfin tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:03PM]

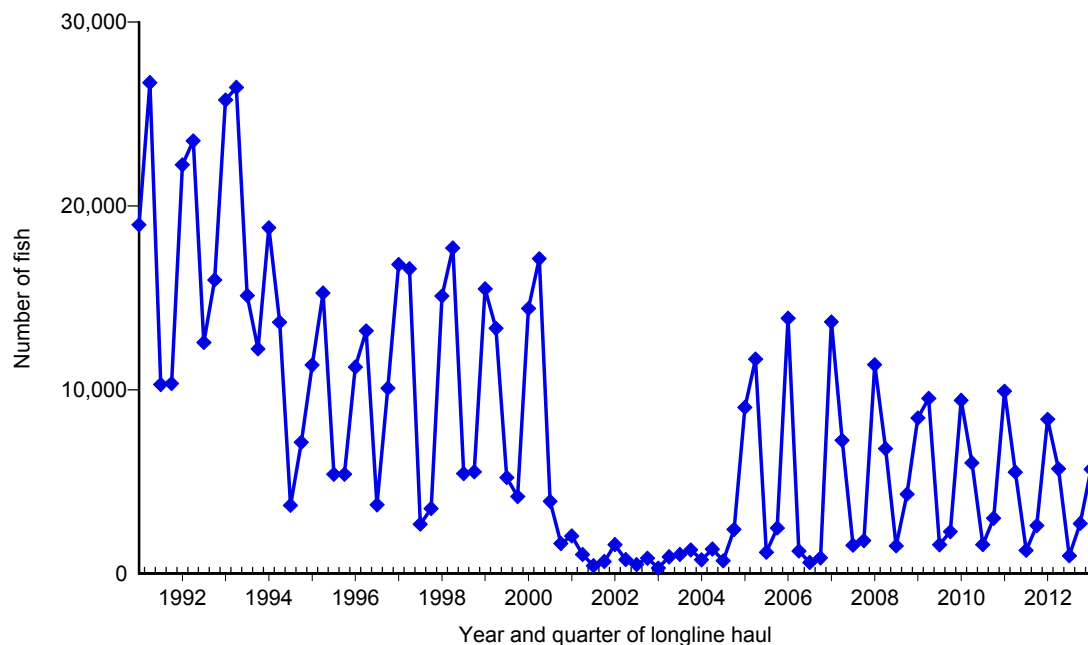


Figure 10. Quarterly catch of swordfish by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:29PM]

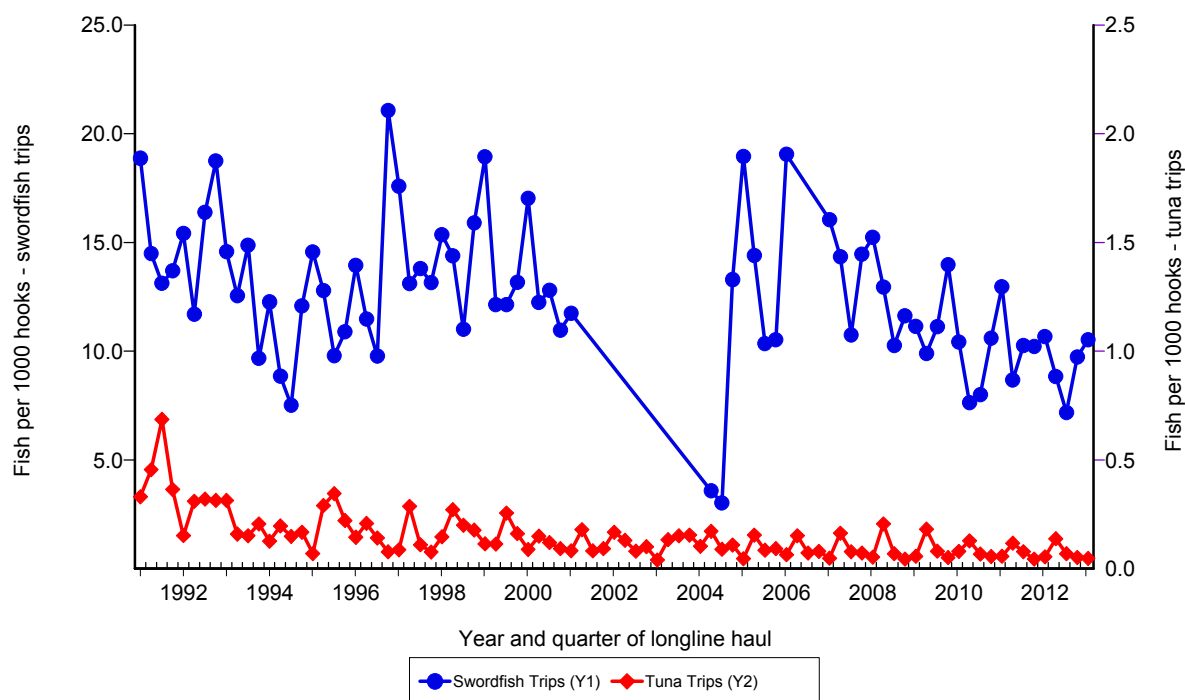


Figure 11. Quarterly CPUE of swordfish (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:29PM]

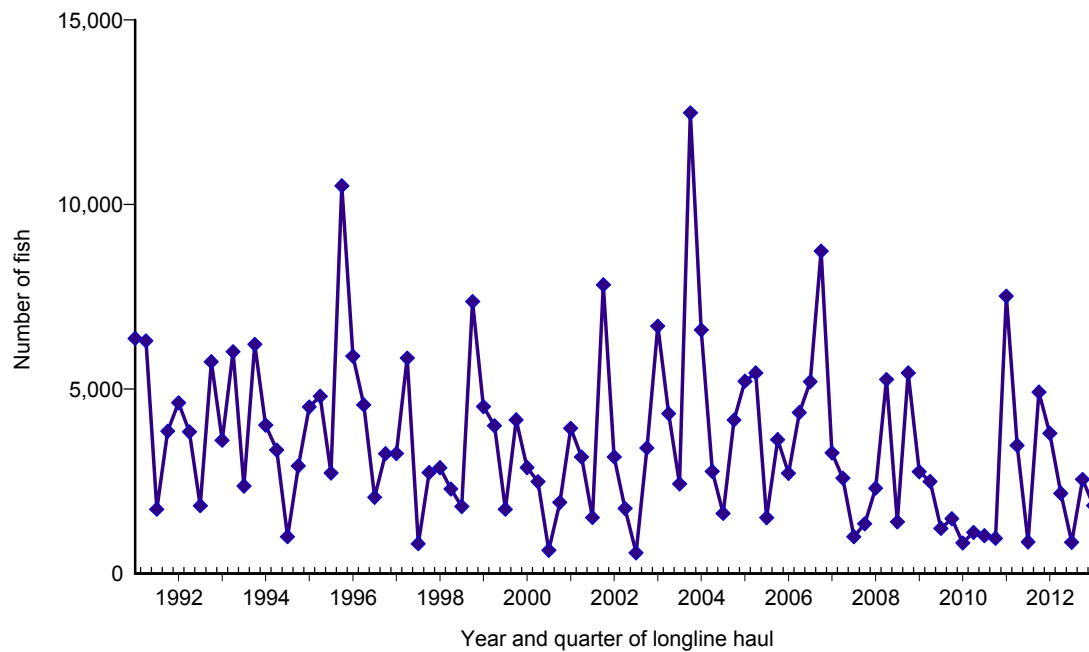


Figure 12. Quarterly catch of striped marlin by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:56PM]

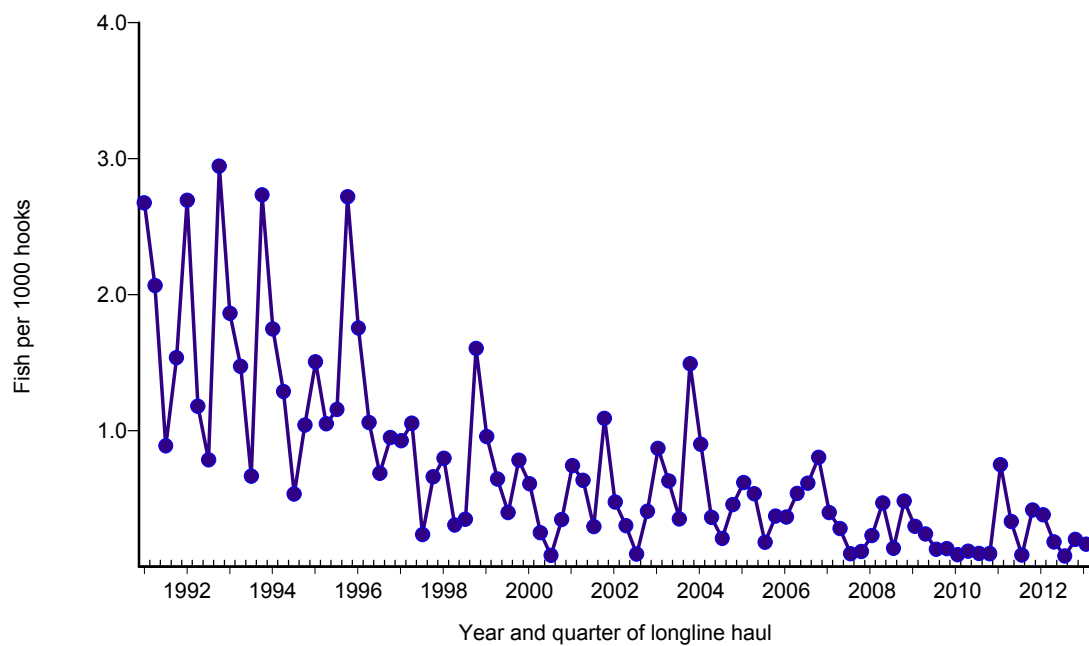


Figure 13. Quarterly CPUE of striped marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:40:56PM]

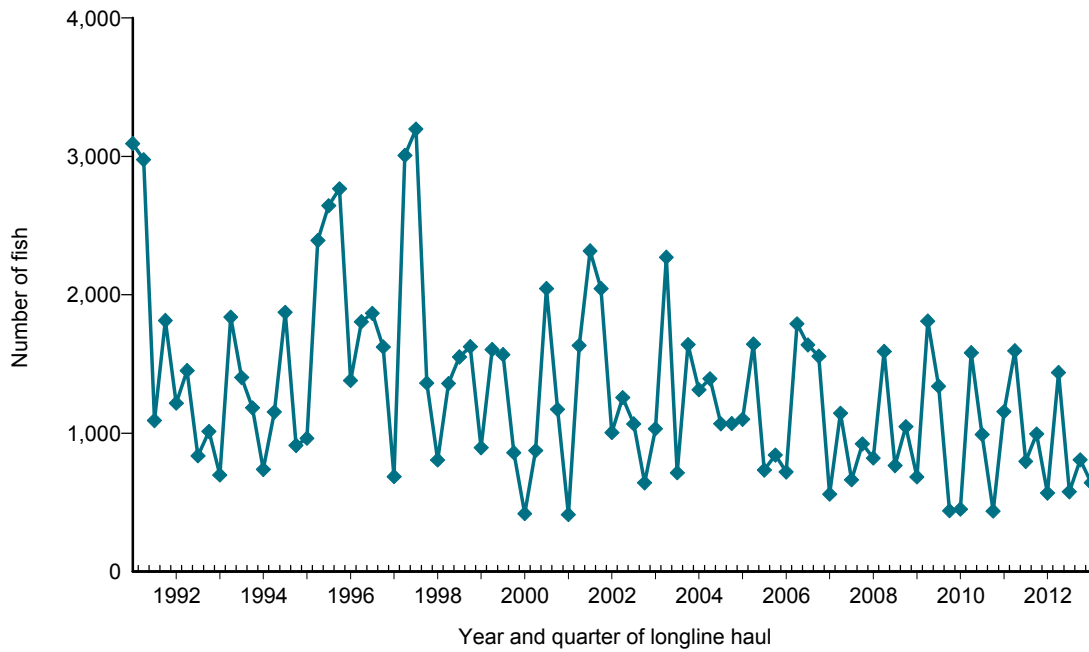


Figure 14. Quarterly catch of blue marlin by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:41:22PM]

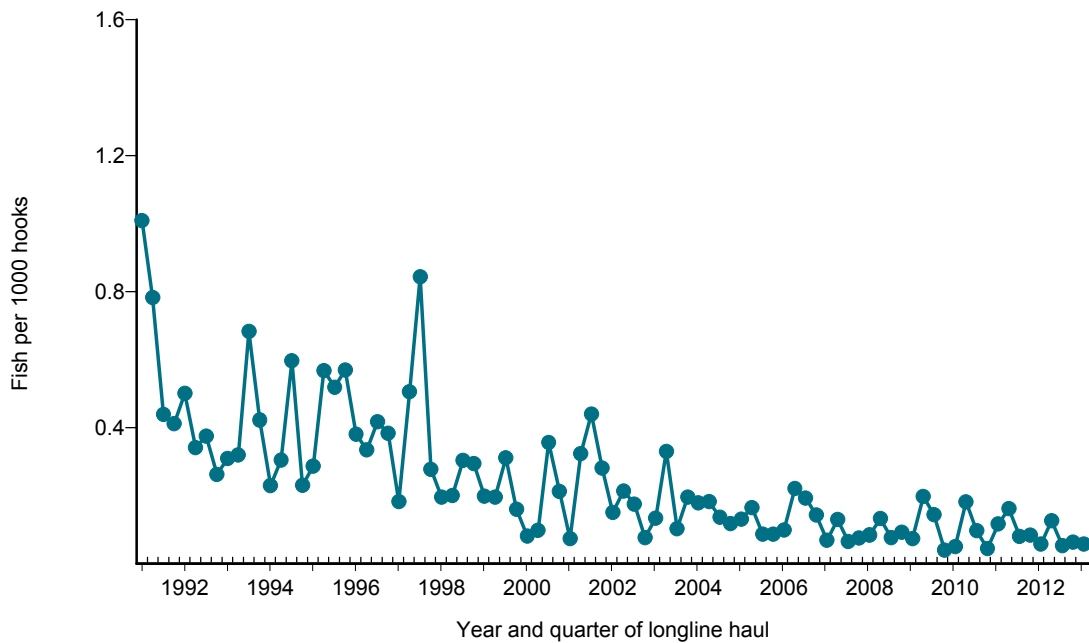


Figure 15. Quarterly CPUE of blue marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:41:22PM]

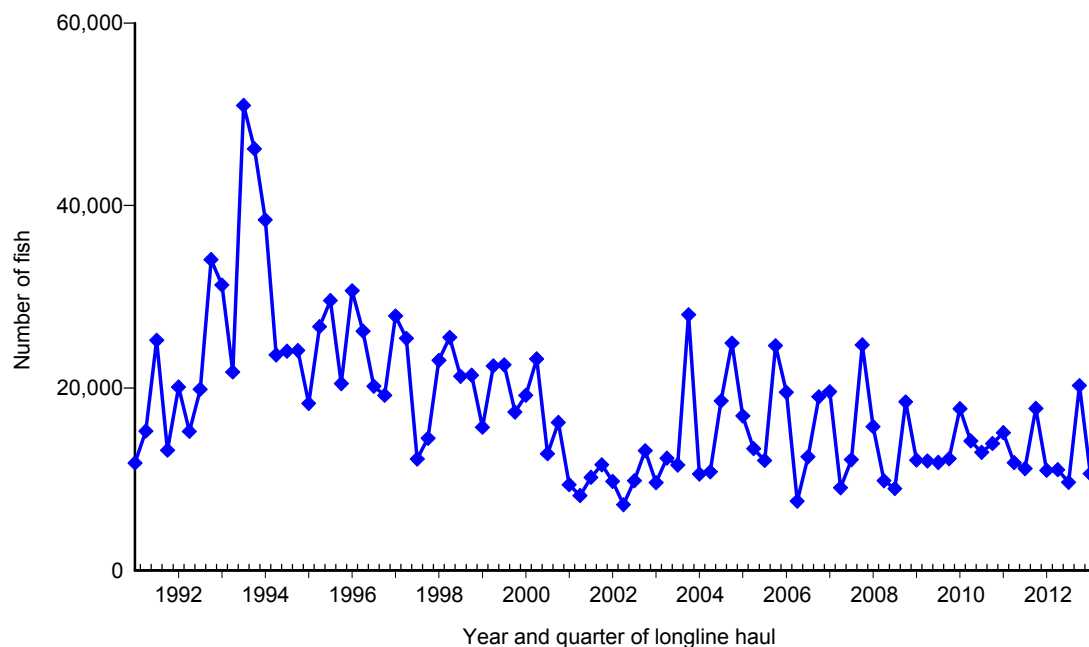


Figure 16. Quarterly catch of blue shark by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:41:49PM]

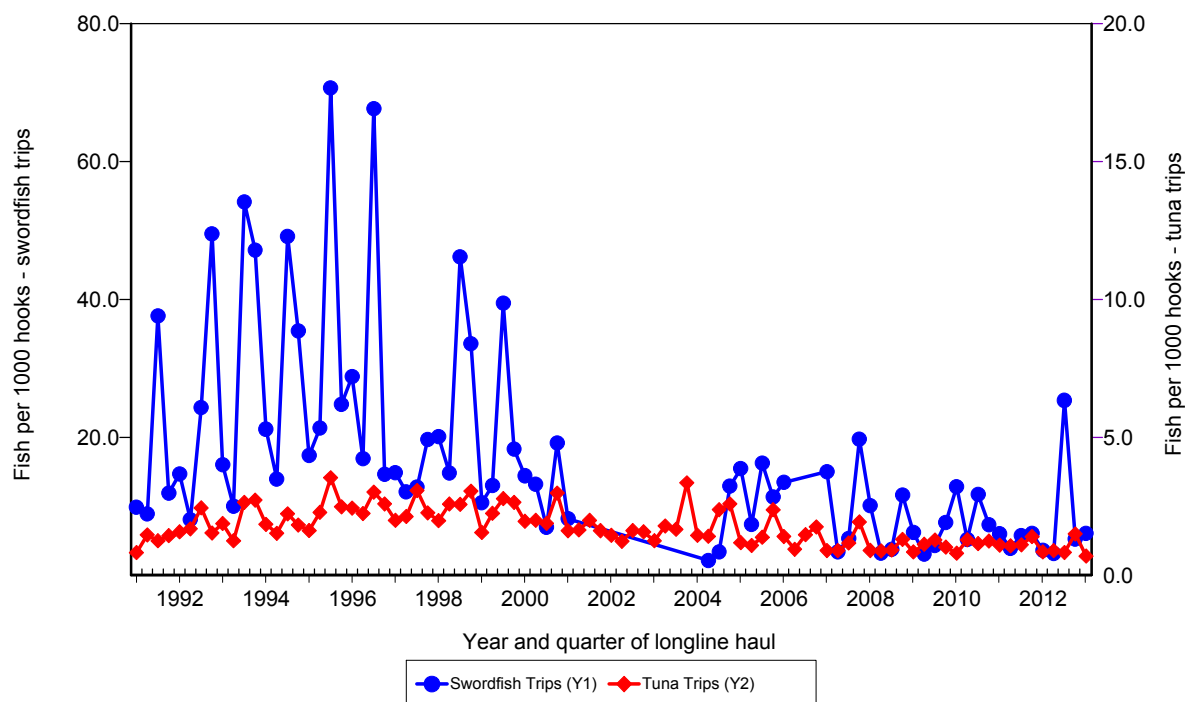


Figure 17. Quarterly CPUE of blue shark (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:41:49PM]

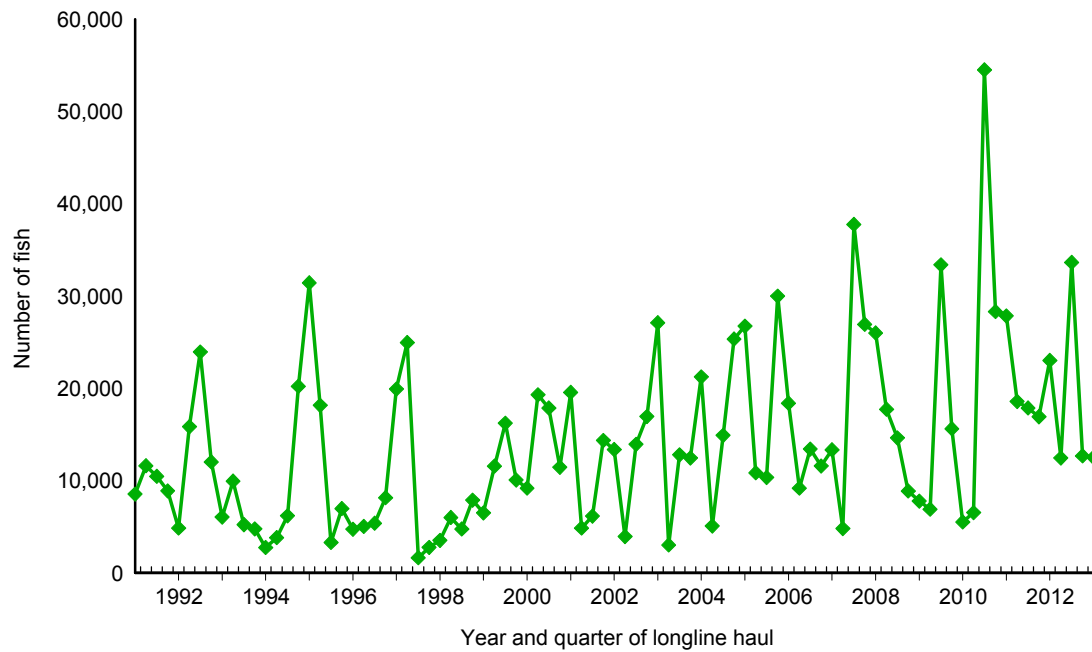


Figure 18. Quarterly catch of mahimahi by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:42:16PM]

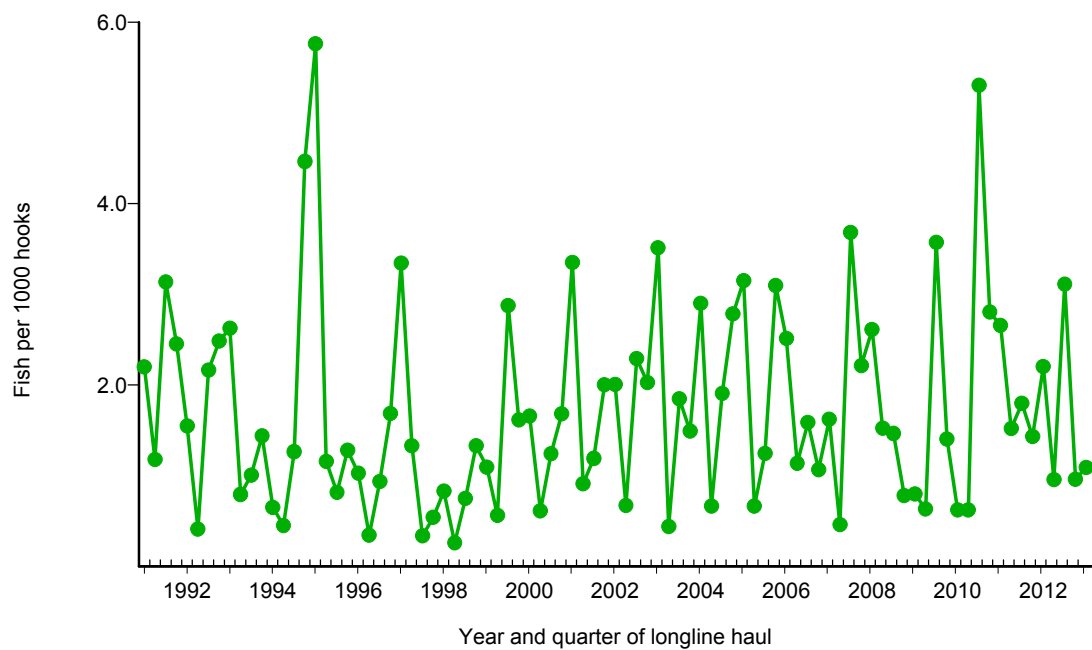


Figure 19. Quarterly CPUE of mahimahi (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:42:16PM]

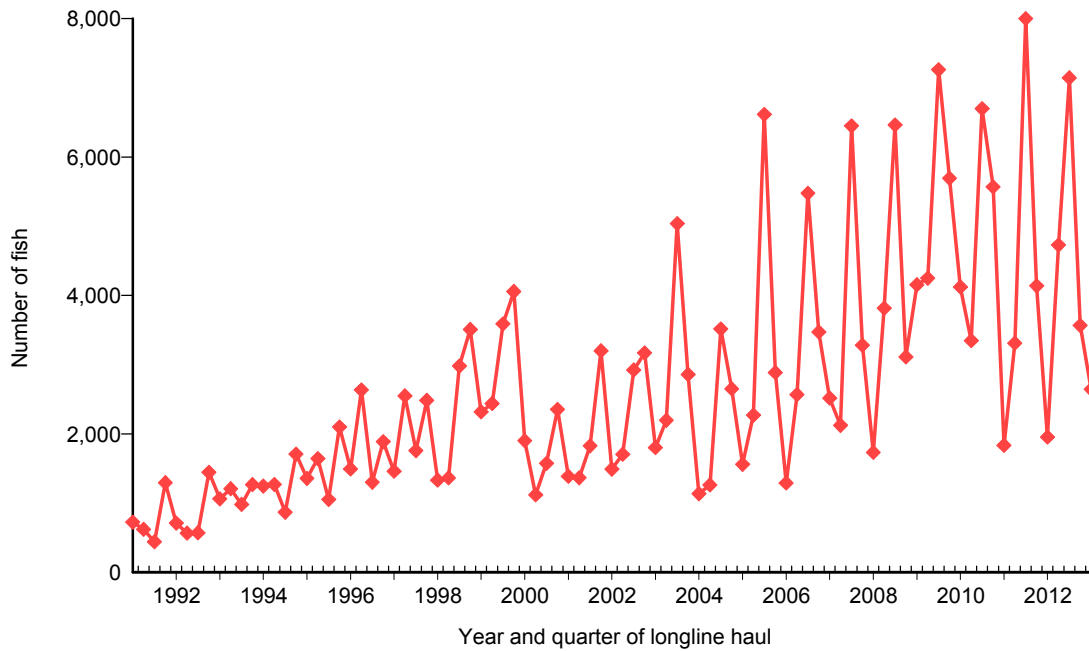


Figure 20. Quarterly catch of moonfish by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:42:43PM]

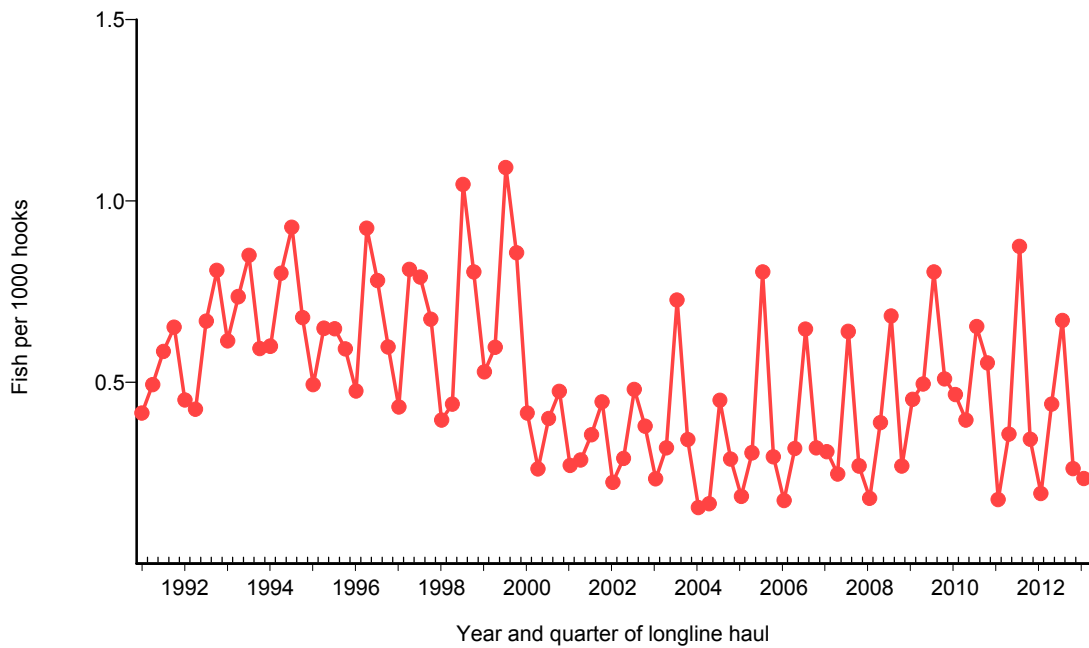


Figure 21. Quarterly CPUE of moonfish (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:42:43PM]

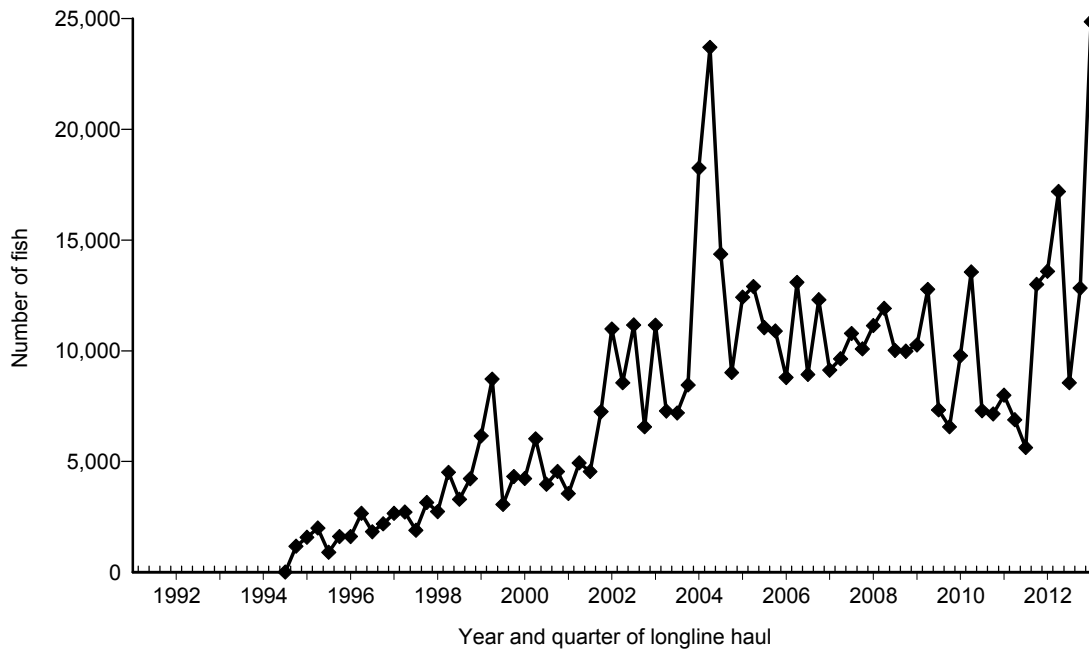


Figure 22. Quarterly catch of pomfret by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:43:09PM]

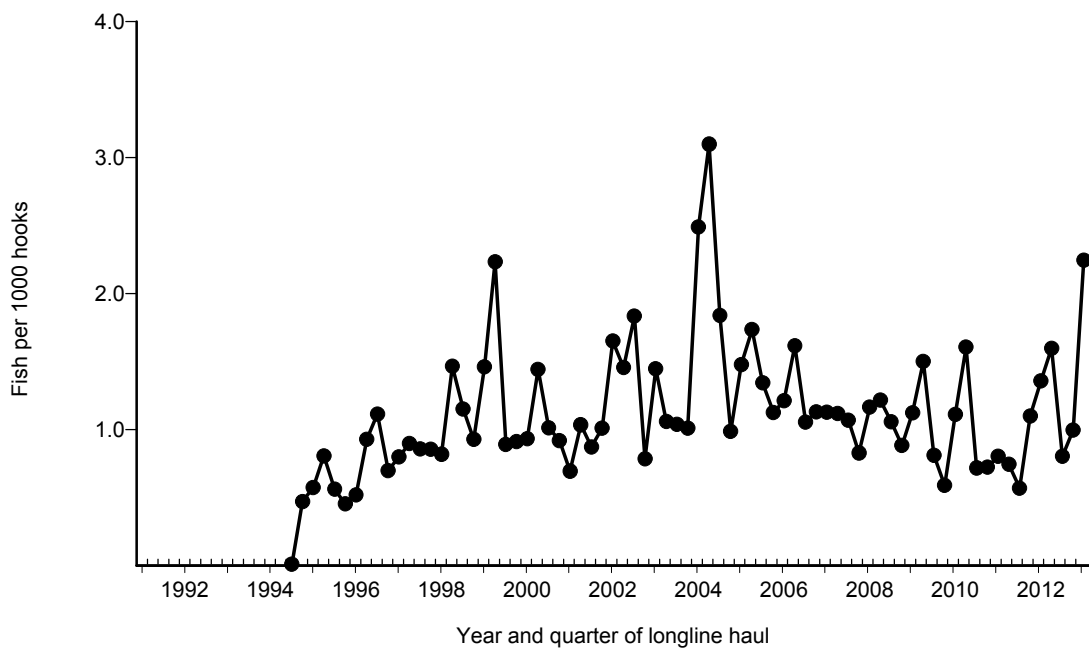


Figure 23. Quarterly CPUE of pomfret (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:43:09PM]

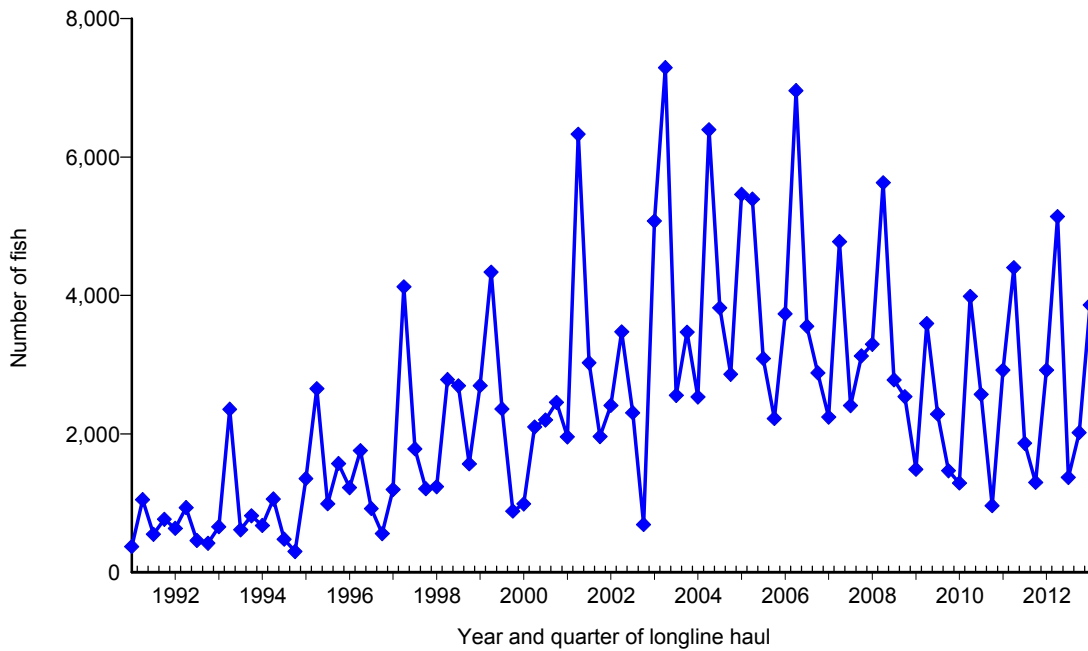


Figure 24. Quarterly catch of wahoo by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:43:37PM]

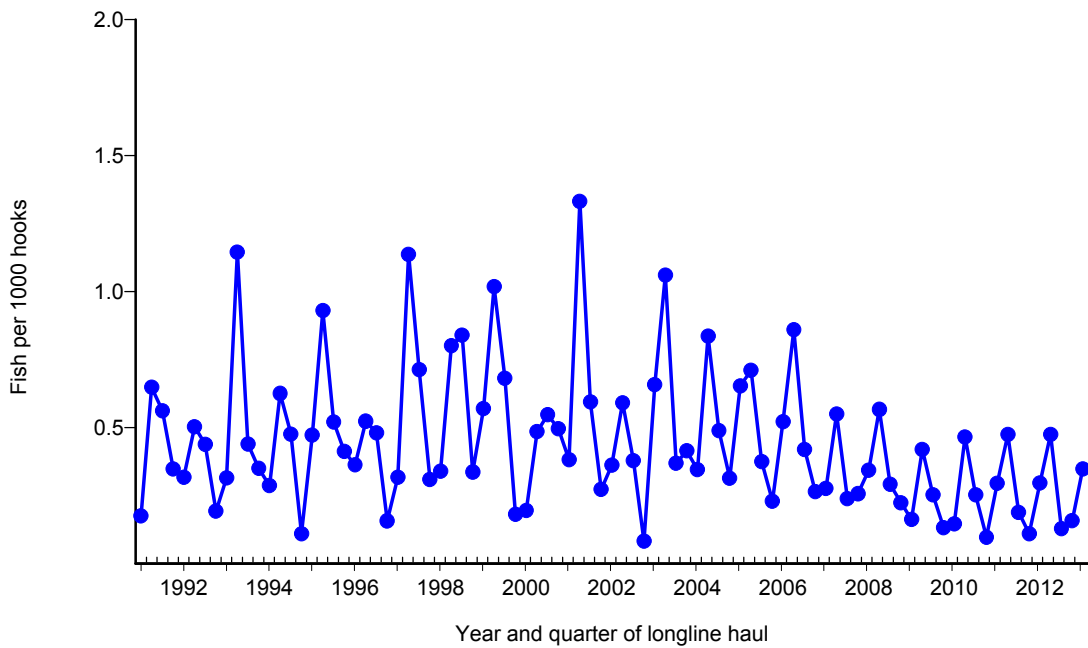


Figure 25. Quarterly CPUE of wahoo (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 5/22/2013 1:43:37PM]